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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,572	11/11/2003	Michael Donovan Mitchell	8681RCR	4234

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EXAMINER

KIM, SUN U

ART UNIT	PAPER NUMBER
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1723

MAIL DATE	DELIVERY MODE
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07/02/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/705,572

Applicant(s)

MITCHELL ET AL.

Examiner

John Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-9 and 11-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-9 and 11-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1-3, 5-6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koslow (US Pat. No. 6,630,016) in view of admitted prior art by Jagtoyen et al (US 2004/0040906 A1). Koslow teaches a filter device comprising a cartridge containing filter material comprising activated carbon coated with silver for purifying water containing bacteria (see col. 1, lines 41-63; col. 11, line 46 – col. 12, line 2). Koslow teaches the step of passing contaminated water through the filter to provide clean water (see col. 1, lines 12-26; col. 2, lines 21-34; col. 12, line 8 – col. 13, line 43). Koslow also teaches that the Filter Bacteria Log Removal (F-BLR) of greater than about 2 logs (see Table II, Example 11 E.coli (LRV) of 8.39) and a Filter Viruses Log Removal (F-VLR) of greater than about 1 log (see Table II, Example 11 MS2 (LRV) of 5.14). Claims 1 and 16 essentially differ from the filter device and method of using the filter device of Koslow in reciting a plurality of filter particles consisting of

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mesoporous activated carbon and a package comprising information. Applicant describes a filter made from known mesoporous and basic activated carbon powder such as Nuchar RGC in a Teflon housing (see Example 3; page 29, lines 13-29) wherein RGC has properties of F-BLR of about 3.0 log (see page 33, line 30 – page 34, line 5) and F-VLR of about 4.4 log (see page 34, line 29 – page 35, line 5) wherein mesoporous and basic activated carbon powder was mixed with low density polyethylene binder and molded. Koslow teaches that activated carbon powders are mixed with low density polyethylene binder and molded or extruded into a solid composite block (see col. 9, line 63 – col. 10, line 21; col. 11, line 45 – col. 12, line 2). Jagtoyen et al teaches a package containing filter comprising housing containing filter material of activated carbon and information that describes the use of the filter for removal of pathogens, particularly viruses (see paragraphs 0280-0283). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to substitute known mesoporous activated carbon filter particles e.g. RGC for the activated carbon particles of Koslow for enhanced bacteria and virus removal capability and pack the filter in a package containing useful information regarding the virus removing capability of the filter to inform consumer as suggested by Jagtoyen et al. Regarding claim 2, applicants describe that known mesoporous activated carbon powder e.g. Nuchar RGC has the sum of the mesopore and the macropore volumes of about 0.61 mL/g (see page 31, lines 16-21). Regarding claim 3, applicants describe that known mesoporous and basic activated carbon powder i.e. Nuchar RGC has properties of Bacterial Removal Index (BRI) of about 99.91% (see page 33, line 30 – page 34, line 4) and Virus Removal Index (VRI) of about 99.996% (see page 34, line 29 – page 35, line 3). Regarding claim 5, applicants describe that filter made from known mesoporous and basic activated carbon

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powder i.e. Nuchar RGC in Example 3 has single collector efficiency of 0.01864 and a filter coefficient of 354.2 m^{-1} (see page 37, line 26 – page 38, line 5). Regarding claim 6, applicants describe that known mesoporous and basic activated carbon powder i.e. Nuchar RGC has a point of zero charge of about 8.8 (see page 32, lines 11-12) and Oxidation Reduction Potential (ORP) of about 317 mV (see page 35, lines 20-22). Point of zero charge of activated carbon particles correlates with the ORP of the water containing the particles because the point of zero charge is a measure of the ability of the carbon to reduce oxygen (see page 13, lines 25-28). One of skill in the art would by routine experimentation find the optimum point zero charge and ORP for optimal ability for carbon to reduce oxygen. It is not inventive to discover the optimum or workable ranges by routine experimentation when the general conditions of a claim are disclosed in the prior art. In re Aller, 105 USPQ 233, 235 (CCPA 1955).

3. Claims 7-9, 11-12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koslow in view of admitted prior art by applicant. Koslow teaches a filter device comprising a cartridge containing filter material comprising activated carbon coated with silver for purifying water containing bacteria (see col. 1, lines 41-63; col. 11, line 46 – col. 12, line 2). Koslow teaches the step of passing contaminated water through the filter to provide clean water (see col. 1, lines 12-26; col. 2, lines 21-34; col. 12, line 8 – col. 13, line 43). Koslow also teaches that the Filter Bacteria Log Removal (F-BLR) of greater than about 2 logs (see Table II, Example 11 E.coli (LRV) of 8.39) and a Filter Viruses Log Removal (F-VLR) of greater than about 1 log (see Table II, Example 11 MS2 (LRV) of 5.14). Claims 7 and 17 essentially differ from the filter and method of using the filter of Koslow in reciting a plurality of filter particles consisting of mesoporous activated carbon and the sum of mesopore and macropore volumes of greater than

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0.4 mL/g. Applicant describes known mesoporous and basic activated carbon powder known as Nuchar RGC (see Example 3; page 29, lines 13-29) wherein RGC has properties of F-BLR of about 3.0 log (see page 33, line 30 – page 34, line 5) and F-VLR of about 4.4 log (see page 34, line 29 – page 35, line 5) and the sum of the mesopore and the macropore volumes of about 0.61 mL/g (see page 31, lines 16-21) wherein mesoporous and basic activated carbon powder was mixed with low density polyethylene binder and molded. Koslow teaches that activated carbon powders are mixed with low density polyethylene binder and molded or extruded into a solid composite block (see col. 9, line 63 – col. 10, line 21; col. 11, line 45 – col. 12, line 2). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to substitute known mesoporous activated carbon filter particles e.g. RGC for the activated carbon particles of Koslow for enhanced bacteria and virus removal capability. Regarding claim 8, applicants describe that known mesoporous activated carbon powder e.g. Nuchar RGC has the sum of the mesopore and the macropore volumes of about 0.61 mL/g (see page 31, lines 16-21). Regarding claim 9, applicants describe that known mesoporous and basic activated carbon powder i.e. Nuchar RGC has properties of Bacterial Removal Index (BRI) of about 99.91% (see page 33, line 30 – page 34, line 4) and Virus Removal Index (VRI) of about 99.996% (see page 34, line 29 – page 35, line 3). Regarding claim 11, applicants describe that filter made from known mesoporous and basic activated carbon powder i.e. Nuchar RGC in Example 3 has single collector efficiency of 0.01864 and a filter coefficient of 354.2 m^{-1} (see page 37, line 26 – page 38, line 5). Regarding claim 12, applicants describe that known mesoporous and basic activated carbon powder i.e. Nuchar RGC has a point of zero charge of about 8.8 (see page 32, lines 11-12) and Oxidation Reduction Potential (ORP) of about 317 mV (see page 35, lines 20-22). Point

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of zero charge of activated carbon particles correlates with the ORP of the water containing the particles because the point of zero charge is a measure of the ability of the carbon to reduce oxygen (see page 13, lines 25-28). One of skill in the art would by routine experimentation find the optimum point zero charge and ORP for optimal ability for carbon to reduce oxygen. It is not inventive to discover the optimum or workable ranges by routine experimentation when the general conditions of a claim are disclosed in the prior art. In re Aller, 105 USPQ 233, 235 (CCPA 1955).

4. Claims 13 and 18 are rejected under 35 U.S.C. 103(a) as being anticipated by Koslow in view of admitted prior art by applicant. Koslow teaches a filter for providing potable water comprising: a housing having an inlet and an outlet (see col. 1, Lines 41-44) and a filter material disposed within the housing formed at least in part from a plurality of activated carbon filter particles (see col. 1, line 63 – col. 2, line 13) coated with silver (see col. 11, lines 45-62) wherein the filter material has a F-BLR of greater than about 2 logs, and a F-VLR of greater than about 1 log (Tables I and II). Koslow further teaches a filter comprising a combination of activated carbon, activated alumina, diatomaceous earth, clay, etc (see col. 5, lines 28-42). Koslow discloses passing contaminated water through the filter to provide potable water (see col. 1, lines 12-14; col. 2, Lines 21-35). Claims 13 and 18 essentially differ from the filter device and method of using the filter device of Koslow in reciting a plurality of filter particles consisting of mesoporous activated carbon. Applicant describes known mesoporous and basic activated carbon powder known as Nuchar RGC (see Example 3; page 29, lines 13-29) wherein RGC has properties of F-BLR of about 3.0 log (see page 33, line 30 – page 34, line 5) and F-VLR of about 4.4 log (see page 34, line 29 – page 35, line 5) wherein mesoporous and basic activated carbon

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powder was mixed with low density polyethylene binder and molded. Koslow teaches that activated carbon powders are mixed with low density polyethylene binder and molded or extruded into a solid composite block (see col. 9, line 63 – col. 10, line 21; col. 11, line 45 – col. 12, line 2). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to substitute known mesoporous activated carbon filter particles e.g. RGC for the activated carbon particles of Koslow for enhanced bacteria and virus removal capability.

5. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koslow in view of admitted prior art by applicant as applied to claims 7 and 13 above, and further in view of Jagtoyen et al. Koslow in view of admitted prior art by applicant teaches the filter. Claims 14-15 essentially differ from the filter of Koslow in view of admitted prior art by applicant in reciting a package for containing the filter and information provided on the package or housing for the filter or filter material. Jagtoyen et al teaches a package containing filter comprising housing containing filter material of activated carbon and information that describes the use of the filter for removal of pathogens, particularly viruses (see paragraphs 0280-0283). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to pack the filter of Koslow in view of admitted prior art by applicant in a package containing useful information regarding the virus removing capability of the filter to inform consumer as suggested by Jagtoyen et al.

6. Applicant's arguments with respect to claims 1-3, 5-9 and 11-18 have been considered but are moot in view of the new grounds of rejection.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the

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teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, activated carbon is well-known material used for water purification wherein activated carbon is used for removal of bacteria (see col. 1, lines 36-58 of US Patent No. 1,782,850). Known mesoporous activated carbon particles e.g. RGC has effective bacteria and virus removing capability as disclosed in applicant's specification (see page 33, line 30 – page 34, line 4; page 34, line 29 – page 35, line 3). Substituting known mesoporous activated carbon filter particles e.g. RGC for the activated carbon particles of Koslow would have been obvious to a person of ordinary skill in the art for enhanced bacteria and virus removal capability.

Applicants argue that the invention does not require the intermediate cationic polymer to coat the silver onto the activated carbon filter particles as in Koslow reference. However, present claims only claim that filter particles is at least partially coated with a material comprising silver and do not claim how silver is coated onto the filter particles.

Applicants argue that neither Mitchell, Koslow nor the Nuchar RGC powder, singularly or in combination, teach or suggest, a filter comprising a filter material consisting of mesoporous activated carbon, wherein the filter has a F-BLR of greater than 2 logs and a F-VLR of greater than about 1 log. However, mesoporous activated carbon particles used in the microporous filter of Koslow is reasonably expected to have claimed F-BLR and F-VLR since known mesoporous activated carbon particles e.g. RGC has enhanced bacteria and virus removal capability as described above. Furthermore, Koslow teaches that the Filter Bacteria Log Removal (F-BLR) of

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greater than about 2 logs (see Table II, Example 11 E.coli (LRV) of 8.39) and a Filter Viruses Log Removal (F-VLR) of greater than about 1 log (see Table II, Example 11 MS2 (LRV) of 5.14).

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Kim whose telephone number is 571-272-1142. The examiner can normally be reached on Monday-Friday 7 a.m. - 3:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



John Kim
Primary Examiner
Art Unit 1723

JK
6/27/07